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| 10/564,024 | 01/09/2006 | Daniel Mullette | 2003P87058WOUS | 7154 |

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SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
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| EXAMINER |
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GREENE, JASON M

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| ART UNIT | PAPER NUMBER |
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1797

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08/04/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/564,024 | Applicant(s) MULLETTE ET AL. | |
| | Examiner Jason M. Greene | Art Unit 1797 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 64-105 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 64-68 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6-11,69-71,75,76,78,80 and 83-87 is/are rejected.
- 7) ☒ Claim(s) 3,5,72-74,77,79,81,82 and 88-105 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>11/29/07</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The use of the trademark HALAR® has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

2. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.

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- (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

It is specifically noted that the specification must contain a brief description of the several views of the drawings.

Claims

3. With regard to claim 77, the Examiner suggests Applicants insert a period (.) at the end of line 2 to correct a minor grammatical informality.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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5. Claim 8 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "highly" in claim 8 is a relative term which renders the claim indefinite. The term "highly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The relative term renders the claimed degree of asymmetry indefinite.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2 and 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Shorr (US 3,556,305).

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Shorr discloses a polymeric ultrafiltration membrane incorporating PVME, wherein the PVME is present as a coating on the membrane, wherein the membrane is hydrophilic and has an asymmetric (layered) structure, wherein the membrane is substantially free of macrovoids and has a reduced pore size as a result of the addition of PVME in col. 1, line 60 to col. 6, line 54, especially col. 2, line 55 to col. 3, line 56.

8. Claims 1, 2 and 6-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Serikov (US 6,602,391 B2).

Serikov discloses a polymeric ultra or microfiltration membrane incorporating PVME, wherein the PVME is present as a coating on the membrane, wherein the polymeric membrane comprises polypropylene, PVDF or ethylene chlorotrifluoroethylene (the support, see col. 11, lines 20-40), wherein the membrane is hydrophilic and has an asymmetric (layered) structure, wherein the membrane is substantially free of macrovoids and has a reduced pore size as a result of the addition of PVME, and wherein the membrane comprises cross linked PVME in col. 10, line 5 to col. 11, line 46.

9. Claims 1, 4, 10 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Gregor (US 4,033,817).

Gregor discloses a polymeric ultrafiltration membrane incorporating PVME (as a copolymer with maleic anhydride along with Kynar), wherein the PVME is incorporated in the membrane as a homogeneous dispersion throughout the

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membrane, wherein the membrane is free from macrovoids and includes cross linked PVME in col. 7, lines 20-68 and col. 9, lines 15-46.

10. Claims 69-71 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US 6,699,611 B2).

Kim et al. discloses a method of hydrophilising a membrane prepared from a polymeric material comprising contacting the polymeric material with a compatible at least partially water soluble polymeric hydrophilising agent containing vinylmethyl ether monomers (PVME) in Figs. 1-5, col. 2, line 23 to col. 3, line 8 and col. 4, line 65 to col. 5, line 66.

11. Claims 75, 76, 78, 80 and 87 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim et al. (US 6,699,611 B2).

Kim et al. discloses a method of modifying the hydrophobic/hydrophilic balance of a polymer membrane prepared from a polymeric material, the method including the step of contacting the polymeric material with PVME to produce a modified polymeric membrane, wherein the polymeric membrane is coated with PVME, wherein the polymeric material is a formed membrane treated with a solution of PVME at a concentration and for a time sufficient to allow PVME saturation of the membrane to take place, or wherein the polymeric material is treated with PVME by means of adding PVME to a membrane dope prior to casting, and wherein the polymeric material is a hydrophobic polymer and the hydrophobic/hydrophilic balance of the polymer is modified to provide a

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hydrophilic modified polymer membrane in Figs. 1-5, col. 2, line 23 to col. 3, line 8 and col. 4, line 65 to col. 5, line 66.

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 83-85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 6,699,611 B2).

While Kim et al. is silent as to the concentration of PVME and the treatment time, one of ordinary skill in the art at the time the invention was made would have recognized that concentration of PVME and the treatment time could be optimized as a matter of routine experimentation depending on the desired properties of the membrane.

14. Claim 86 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim et al. (US 6,699,611 B2) in view of Greenwood et al. (US 6,056,903).

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Kim et al. does not explicitly recite a rinsing stage to remove unbound PVME, but Greenwood et al. teaches a similar method including a rinsing step to remove a coating material and solvent in col. 2, lines 26-36.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the rinsing step of Greenwood et al. into the method of Kim et al. to remove and remaining coating solution from the membrane, as suggested by Greenwood et al. in col. 2, lines 26-36.

Allowable Subject Matter

15. Claims 12 and 64-68 are allowed.

16. Claims 3, 5, 72-74, 77, 79, 81, 82 and 88-105 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17. The following is a statement of reasons for the indication of allowable subject matter:

With regard to claims 3 and 5, the prior art made of record does not teach or fairly suggest the membrane of claim 1 wherein the PVME is present as a coating on the membrane and is incorporated in the membrane as a

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homogeneous dispersion throughout the membrane or wherein the PVME is incorporated as a heterogeneous dispersion throughout the membrane.

With regard to claims 12 and 64-68, the prior art made of record does not teach or fairly suggest the membrane of claim 12 incorporating adsorbed PVME and embedded PVME, wherein the adsorbed PVME is cross linked with the embedded PVME.

With regard to claims 72-74, the prior art made of record does not teach or fairly suggest the method of claim 69 where the polymeric hydrophilising agent is a copolymer containing vinylmethyl ether monomer and at least one other comonomer.

With regard to claim 77, Kim et al. (US 6,699,611 B2) is directed to an electrolytic membrane for fuel cell applications. The prior art made of record does not teach or fairly suggest the method of claim 75 wherein the polymeric membrane is an ultrafiltration or microfiltration membrane.

With regard to claim 79, the prior art made of record does not teach or fairly suggest the method of claim 75 wherein the polymeric material is one of the recited polymers.

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With regard to claims 81 and 82, the prior art made of record does not teach or fairly suggest the method of claim 80 wherein the polymeric material is post treated by soaking in a solution of PVME in ethanol.

With regard to claims 88-102, the prior art made of record does not teach or fairly suggest the method of claim 87 wherein the membrane dope is cast via a thermally induced phase separation process.

With regard to claim 103, the prior art made of record does not teach or fairly suggest the method of claim 69 wherein PVME is incorporated in the membrane dope and formed into a membrane, and wherein the membrane is further treated with PVME.

With regard to claims 104 and 105, the prior art made of record does not teach or fairly suggest the method of claim 69 wherein the membrane is treated to cross link the PVME.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Fibiger et al., Swedo et al., Yamabe et al., Uemura et al., Shah et al., Haslam et al., Zaffaroni et al. and JP 2-9498 disclose similar membranes.

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19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (571) 272-1157. The examiner can normally be reached on Monday - Friday (9:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jason M. Greene
Primary Examiner
Art Unit 1797

/Jason M. Greene/
7/31/08

jmg
July 31, 2008